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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/742,127	12/19/2003	Raphael Schlanger	03-100	5022

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EXAMINER
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BELLINGER, JASON R

ART UNIT	PAPER NUMBER
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3617

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/742,127

Applicant(s)

SCHLANGER, RAPHAEL

Examiner

Jason R Bellinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 4-6, 8, 9, 14 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 10-13, 15, 23-31, 33-43, 45 and 48 is/are rejected.
- 7) ☒ Claim(s) 17-22, 32, 44, 46 and 47 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/19/03
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

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***Election/Restrictions***

1. Applicant's election without traverse of species II, drawn to Figures 4a-4f, in the reply filed on 14 December 2004 is acknowledged.
2. Claims 4-6, 8-9, 14, and 16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 14 December 2004.

***Specification***

3. The disclosure is objected to because of the following informalities: Paragraph 2 of the "Summary of the Invention" on page 4 through lines 1-5 of page 5 is a copy of the independent claim. Claim language should not be relied upon to describe the invention, and therefore this section of the specification should be removed.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-3, 7, 12-13, 15, 23, 25-27, 29, 32, 41-43, 45, and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Stevens et al. Stevens et al shows a wheel having a peripheral rim **d** and a central hub **e** with a hub flange. A plurality of spokes **a** extends between the rim **d** and hub **e**, wherein the spokes **a** have a first portion connected to the rim **d** and a second portion opposed to the first portion. The spokes **a** are a duplex spoke, including a pair of structural spans that each extend between the rim **d** and hub **e**, with a common portion connected to the hub flange. The duplex spokes **a** include engagement means (namely the bend portion as shown in Figure 2) to directly engage the hub flange, while the hub flange includes an engagement means **f** for directly engaging the duplex spoke engagement means. This hub flange engagement means **f** provides relative slippage control between the hub flange and the duplex spoke engagement means (i.e. means **f** prevents the spoke **a** from moving), bracing against spoke tension, and transmits torque between the hub flange and the spokes **a**.

The wheel is a tension spoke wheel, and includes pre-tensioning of the spokes, given the fact that the spokes **a** are connected to an adjustable spoke nipple **c**. The duplex spoke **a** is assembled to the hub **e** in a generally radial direction. The structural spans of the duplex spoke **a** are axially offset from one another. The duplex spokes **a** include a clockwise radiating span and a counterclockwise radiating span. The clockwise radiating span of a first duplex spoke **a** crosses the counterclockwise span of a second duplex spoke **a**. The engagement means of the duplex spoke **a** has a matched surface-to-surface contact with the engagement means **f** of the hub flange.

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The angle between the first and second structural spans of the duplex spoke **a**, as measured radially outboard of the hub flange is greater than 180 degrees (see Figure 2). The duplex spoke **a** includes at least two engagement means (namely the opposing faces of the bent portion), while the hub flange includes at least two hub flange engagement means (namely the opposing sides of the slot **f**), and are connected to each other in opposite tangential directions.

The engagement means **f** of the hub flange creates a wedging engagement with the engagement means of the duplex spoke **a**. The pre-tension of the spokes serves to press the engagement means of the duplex spokes **a** against the engagement means **f** of the hub flange, thus augmenting the wedging engagement. The engagement means **f** of the hub flange is an open cavity, which includes a generally radially extending spoke-bracing surface that the duplex spoke **a** contacts. The spoke engagement means has an integral region of variable cross-section that provides an overlying engagement with the hub flange, and acts as a projecting portion that engages a projecting portion of the hub flange (namely the sides of the groove **f**).

6. Claims 1-2, 7, 13, 15, 23-28, 30-31, 35-36, 41-43, 45, and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe ('277). Watanabe shows a wheel 12 having a peripheral rim 13 and a central hub 14 with a hub flange (15-16). A plurality of spokes (17-18) extends between the rim 13 and hub 14, wherein the spokes (17-18) have a first portion connected to the rim 12 and a second portion opposed to the first portion. The spokes (17-18) are a duplex spoke, including a pair of structural spans (21-

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22) that each extend between the rim 12 and hub 14, with a common portion 17a connected to the hub flange (15-16). The duplex spokes (17-18) include engagement means 17a to directly engage the hub flange 15, while the hub flange 15 includes an engagement means 25 for directly engaging the duplex spoke engagement means 17a. This hub flange engagement means 25 provides relative slippage control between the hub flange 15 and the duplex spoke engagement means (i.e. means 25 prevents the spoke 17 from moving), bracing against spoke tension, and transmits torque between the hub flange 15 and the spokes 17.

The wheel 12 is a tension spoke wheel, and includes pre-tensioning of the spokes, given the fact that the spokes (17-18) are connected to an adjustable spoke nipple 19. The structural spans (21-22) of the duplex spoke 17 are axially offset from one another. The engagement means 17a of the duplex spoke 17 has a matched surface-to-surface contact with the engagement means 25 of the hub flange 15.

The angle between the first 21 and second 22 structural spans of the duplex spoke 17, as measured radially outboard of the hub flange 15 is equal to or greater than 180 degrees (see Figure 3). The duplex spoke 17 includes at least two engagement means (namely the opposing faces of the bent portion), while the hub flange 15 includes at least two hub flange engagement means (namely the slot portions 25 a & 25 b), and are connected to each other in opposite tangential directions. At least two engagement means 25 of the hub flange 15 are axially staggered with respect to each other.

The engagement means 25 of the hub flange 15 creates a wedging engagement with the engagement means 17a of the duplex spoke 17. The pre-tension of the spokes

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serves to press the engagement means 17a of the duplex spokes 17 against the engagement means 25 of the hub flange 15, thus augmenting the wedging engagement. The engagement means 25 of the hub flange is an open cavity. The cavity includes two open end recesses (25a & 25c) with the first structural span 21 extending through the first open end recess 25a, and the second structural span 22 extending through the second open end recess 25c. There are at least two spoke bracing surfaces, with the first structural span 21 contacting the first spoke bracing surface, and the second structural span 22 contacting the second spoke bracing surface.

The duplex spoke 17 includes a continuous structural element 17a that includes the two structural spans (21-22) and acts as the common portion. The continuous structural element 17a is formed of a metallic material (as is the rest of the spoke 17).

The spoke engagement means 17a has an integral region of variable cross-section that provides an overlying engagement with the hub flange 15, and acts as a projecting portion that engages a projecting portion of the hub flange 15 (namely the sides of the groove 25).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevens et al. Stevens et al contains all of the limitations as set forth in paragraph 5 above, but does not specify that the distance of the axial offset is generally equal to, or greater than, the axial cross-sectional thickness of the duplex spoke in the region of the structural spans. It would have been obvious to one of ordinary skill in the art at the time of the invention to give the axial offset of the duplex spokes any suitable dimension to provide a positive and slip-free connection with the hub flange, in order to prevent vibration of the wheel assembly during use.

9. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevens et al as applied to claims 1-3, 7, 10-13, 15, 23, 25-27, 29, 41-43, 45, and 48 above, and further in view of Meggiolan. Stevens et al does not show the hub flange being made of a fiber reinforced polymeric material. Meggiolan teaches the use of a hub with hub flanges made from a fiber reinforced polymeric material. Therefore from this teaching, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the hub flanges of Stevens et al from a fiber reinforced polymeric material in order to reduce the weight of the wheel without sacrificing strength, durability, etc.

10. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe ('277). Watanabe contains all of the limitations as set forth in paragraph 6 above, but does not specify that the distance of the axial offset is generally equal to, or



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greater than, the axial cross-sectional thickness of the duplex spoke in the region of the structural spans. It would have been obvious to one of ordinary skill in the art at the time of the invention to give the axial offset of the duplex spokes any suitable dimension to provide a positive and slip-free connection with the hub flange, in order to prevent vibration of the wheel assembly during use.

11. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe ('277) as applied to claims 1-2, 7, 10-11, 13, 15, 23-28, 30-31, 35-36, 41-43, 45, and 48 above, and further in view of Meggiolan. Watanabe does not show the hub flange being made of a fiber reinforced polymeric material. Meggiolan teaches the use of a hub with hub flanges made from a fiber reinforced polymeric material. Therefore from this teaching, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the hub flanges of Watanabe from a fiber reinforced polymeric material in order to reduce the weight of the wheel without sacrificing strength, durability, etc.

12. Claims 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe as applied to claims 1-2, 7, 10-11, 13, 15, 23-28, 30-31, 35-36, 41-43, 45, and 48 above, and further in view of Johnson. Watanabe does not show the spokes, including the continuous structural member, being made from a high strength fiber impregnated thermoset polymer matrix, wherein the fibers extend through the common portion in a continuous manner. Johnson teaches the use of a high strength fiber

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impregnated thermoset polymer matrix spoke 10 with continuous fibers. Therefore from this teaching, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the spokes of Watanabe from a fiber reinforced thermoset polymeric material in order to further reduce the weight of the wheel without sacrificing strength, durability, etc.

### ***Allowable Subject Matter***

13. Claims 17-22, 44, and 46-47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references are considered to show wheels having duplex spokes that are connected to a hub flange by an engagement means. For example, Forsythe et al shows a wheel of the type described above.

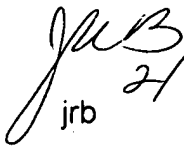
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason R Bellinger whose telephone number is 703-308-6298. The examiner can normally be reached on Mon - Thurs (9:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Morano can be reached on 703-308-0230. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason R Bellinger  
Examiner  
Art Unit 3617

  
jrb 2/4/05

**JASON R. BELLINGER**  
**PATENT EXAMINER**